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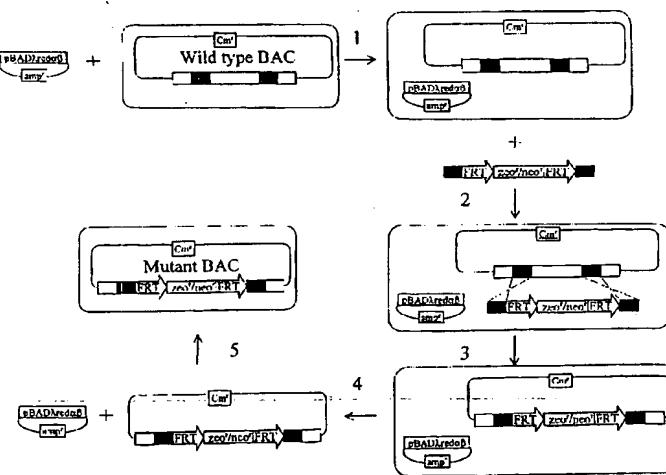
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(54) Title: METHODS FOR THE PRODUCTION OF CELLS AND MAMMALS WITH DESIRED GENETIC MODIFICATIONS



(57) **Abstract:** The present invention features novel methods for generating cell lines and mammals with site-specific genetic modifications of interest. The methods involve homologous recombination between an artificial chromosome having a modification of interest and an endogenous chromosome of a cell. The resulting modified cells can be used in standard methods to generate genetically modified mammals. These mammals can be used in a variety of screening methods to identify compounds useful for the treatment or prevention of disease. Additionally, cells that have been modified to eliminate a mutation associated with a disease can be transplanted into patients for the treatment of a disease.

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